

Claims

1. Method for recognizing speech.

- wherein at least keywords (Kj) in a received speech phrase (SP) are recognized employing a keyword spotting based recognition process (12) and a given language model (LM),

- wherein a combination of at least one first language or keyword model (KM) containing and/or describing possible in-vocabulary or keywords or phrases (Kj) and one second language or out-of-vocabulary model (OOVM) describing at least in part out-of-vocabulary words or phrases (Gj) is used as said language model (LM), and

- wherein a global penalty (Pglob) is associated to and/or introduced or inserted into said language model (LM) so as to increase the recognition of keywords (Kj),
characterized in that

at least one variable penalty value (Ptrans, P1, ..., P6) is associated with and/or used to define the global penalty (Pglob).

2. Method according to claim 1,

wherein said variable penalty value (Ptrans, P1, ..., P6) is in each case made dependent on or a function of the recognition process, of an user input, of a received speech phrase (SP) per se and/or their characteristics or the like.

3. Method according to anyone of the preceding claims,

wherein at least one statistical model, garbage model (GM) and/or the like is used as said out-of-vocabulary model (OOVM).

4. Method according to anyone of the preceding claims,

wherein said out-of-vocabulary model (OOVM) and in particular said garbage model (GM) is chosen to contain at least a phone* grammar or the like.

5. Method according to anyone of the preceding claims,

wherein said variable penalty value (Ptrans, P1, ..., P6) is associated with a transition (T) of the recognition process (12), in particular from a keyword model (KM) to an out-of-vocabulary model (OOVM).

6. Method according to anyone of the preceding claims,

wherein said variable penalty value (Ptrans, P1, ..., P6) is - in particular in each case - associated with a recognition step and/or recognition or process-

- 1 ing time of said recognition process (12) within said out-of-vocabulary model
(OOVM) or a garbage model (GM).
7. Method according to anyone of the preceding claims,
5 wherein a lattice structure of recognition paths or the like is used in said
keyword model (KM) and/or said out-of-vocabulary (OOVM) or garbage model
(GM).
8. Method according to claim 7,
10 wherein with at least a part of said recognition paths in said out-of-vocabulary
(OOVM) is associated a variable penalty value (Ptrans, P1, ..., P6), in
particular within the statistical information of said out-of-vocabulary model
(OOVM) or garbage model (GM).
- 15 9. Method according to any of the preceding claims,
wherein a Markov model, and in particular a single state Markov model, is
at least contained in said out-of-vocabulary model (OOVM) or garbage model
(GM), and
20 wherein a variable penalty value (P1, ..., P6) is associated with self-transi-
tions of the recognition process within said Markov model.
10. Method according to anyone of the preceding claims,
wherein a variable penalty value is associated with all transitions in a
Markov model.
- 25 11. Method according to anyone of the preceding claims,
wherein said variable penalty value (Ptrans, P1, ..., P6) is made dependent
on the particular application, the application status and/or on user preferences.
- 30 12. Method according to anyone of the preceding claims,
wherein said variable penalty value (Ptrans, P1, ..., P6) is varied interac-
tively, in particular by an user action via an user interface.
- 35 13. Method according to anyone of the preceding claims,
wherein said variable penalty value (Ptrans, P1, ..., P6) is hold and stored
in a randomly accessible manner in particular within the model statistical infor-
mation of the language model (LM).

- 1 **14.** Method according to anyone of the preceding claims,
 wherein likelihoods (LKM, LGM), global scores or the like for recognition
 results in said keyword model (KM) and in said out-of-vocabulary model (OOVM)
 - in particular said garbage model (GM) - are determined, the latter of which be-
5 ing variably penalized, and
 wherein a recognition result (RSP) is accepted with the keyword model
 likelihood (LKM) being larger than a respective out-of-vocabulary model likeli-
 hood (LGM), and is rejected as being out of vocabulary otherwise.

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